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GUEST EDITORIAL: THE AVERAGE ANIMAL

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At the Iowa meeting of the American Psychological Association I expressed my opinion of the unsatisfactory nature of data on performances of groups of rats when these data are presented solely in terms of the average rat—an animal which is entirely mythical, of which the value as a construct is determined by accessory data. While I heard no serious dissent from my opinion, the types of presentations since that time impel me to believe that further objections, and in print, may be useful. The editors of this Journal have no intention of being dictatorial, and in general, propose to continue as in the past to permit authors to manage their affairs in their own way. We are not a board of censors, and our judgment as what is worthwhile is no better than that of other editors. What seems at the time a very significant piece of research often turns out, ten years later, to have better merited suppression, and what seems unimportant or trifling turns out in some cases to have been a contribution of great value. We do not propose even to worry about authors' grammar, and undue prolixity is apparently an individual trait which renders it impossible for some authors to express themselves at all without an excess of words. Many other defects of presentation are also really none of our business, if we are to offer an unprejudiced avenue of publication.

Certain points, however, are within the province of the editors for suggestion, and need emphasis. The real value of an article is in the data, and not in the author's conclusions. Old data are often valuable when new points of view have rendered the author's personal conclusions negligible. The value of the data, however, is in many cases grievously impaired because the author has not actually presented it in full, or has failed to note the exact conditions under which the data were obtained. The importance of the latter consideration is such that we prefer to publish description of needless minuteness, rather than run the risk of the vital points being omitted. Historical introduction, we have to ask authors to reduce to a few references, essential to the presentation of the actual problem. More and better historical analyses are urgently needed on most topics, but we cannot give them space. We pray that authors will reduce the presentation of their own opinions, ideas and inferences to a minimum. These data, however, we want presented in the most useful way, and we wish authors to avoid the Scylla of raw data, and the Charybdis of data reduced to the point where the reader has nothing but the author's say-so that it supports his conclusions.

Presentation of group averages alone seems to reduce the data to this zero level in many instances. Plentiful illustrations may be drawn from the pages of this Journal, but I have no desire to single out individuals for the pillory. I may illustrate by a suppositious case. Suppose an investigator to compare preference for wheat and barley as food by rats of two different strains. Suppose he offers each rat fifty choices, and that there are fifty rats in each group. Suppose he finds that 80 per cent of the preferences of one group are for wheat and that 82 per cent of the other group preferred wheat. Does this tell us anything about rats? Yes, a little, of a merely statistical nature. The questions unanswered are: Did all the rats in each group show a preference for wheat? Or did some in each group decidedly prefer barley? All sorts of different relations of preferences might contribute to the same statistical result. The value of the averages is determined solely by these relations. In this particular case, the averages could be explained by brief tables showing the number of rats in each group in which percentages of individual preferences for wheat were 0–10, 11–20, 21–30, and so on of their total choices. Without such an analysis, the averages have only a statistical value. In other types of investigation different methods

of presenting the data beyond the average are needed.

This presentation of a mythical average animal was painfully conspicuous in the early days of human experimental psychology. In my list of Great Experiments in Bad Psychology there is one research in which the average value presented as significant is a value which every person experimented on conspicuously avoided. In human psychology, however, we have fairly well eliminated the average animal, except in the field of intelligence testing, where it doesn't matter since the data in this field are of ephemeral value. In child psychology and in animal psychology the average animal is still too much of a totem.

It is possible that the Editorial Board ought to adopt definite principles determining acceptable data. These might include a stipulation for an adequate number of animals, which is of course a relative matter. There are still exploratory situations in which careful work on a few animals may open up a problem. Work which is supposed to give a tentative determination of an experimental point certainly demands a considerable number of animals, and I doubt the value of computing coefficients of correlation or probable error on less than what would in present practice be considered a large number, say one hundred.

As for the group standards and criteria, while in few cases do we want the detailed data on individual animals which were perfectly in order in Small's pioneer investigation, should we not exclude reports in which the group averages of performance are presented without interpretative distributions?

This, is seems to me, is a point which the contributors to the Journal, and its readers, should decide, since our function as editors is not to determine the sort of reports which the active workers in animal psychology wish to have.

Editor's comment: Some observations withstand well the test of time. This editorial first appeared in 1935, in the *Journal of Comparative Psychology* (Vol. 19, pp. 1–3), and is reprinted here with the kind permission of Lippincott Williams & Wilkins, Baltimore, Maryland.